

# Storm Fury on the Plains

Fall Spotter Newsletter

November 2011

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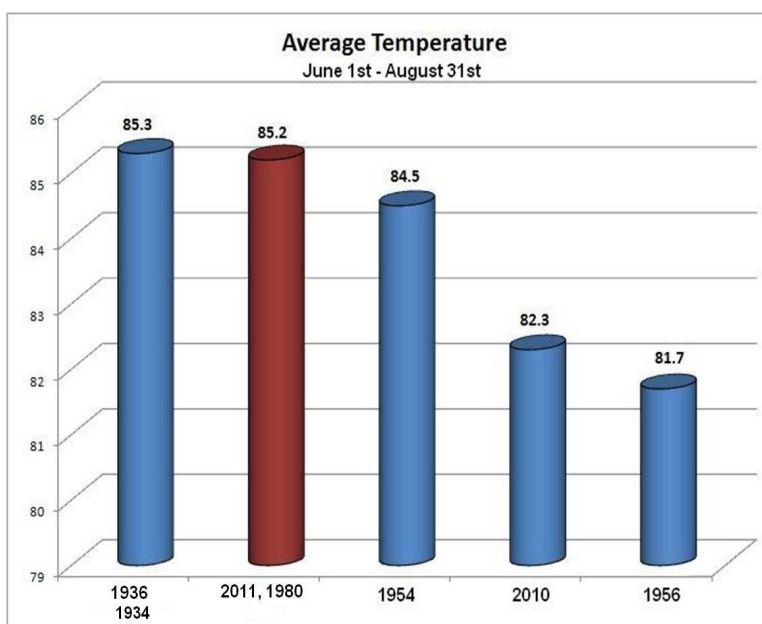
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## The Summer of 2011 Goes Down in the Record Books

*By: Eric Schminke*

Meteorological summer extends from June 1<sup>st</sup> to August 31<sup>st</sup>. While there's no doubt Kansas summers are hot and occasionally humid, the 2011 edition proved to be hotter than a Habanero pepper as it was nearly the hottest on record. Be prepared to receive a third degree burn on the temperature statistics of this most recent summer for there are many.

During summer 2011, Wichita wilted in temperatures averaging 85.2 degrees. This was the hottest summer since 1980 during which the average temperature was also 85.2 degrees and is only exceeded by the 85.3 degree averages achieved in 1934 and 1936 by a mere 0.1 degree when the Dust Bowl was on an obvious hot streak. The bar graph below displays the 7 hottest summers in Wichita's climate history.



This graph shows the average temperature through meteorological summer (June-August). The summer of 2011 tied for second place with 1980 behind 1934 and 1936.

Southeast Kansas sweated it out as Chanute averaged 83.1 degrees. This made 2011 their 5<sup>th</sup> hottest on record and their hottest since 1980 when the average was 83.5 degrees. Based on available data, Salina also averaged 83.1 degrees which made 2011 their 2<sup>nd</sup> hottest on record and also their hottest since 1980 when their average was an even 84 degrees. Re-

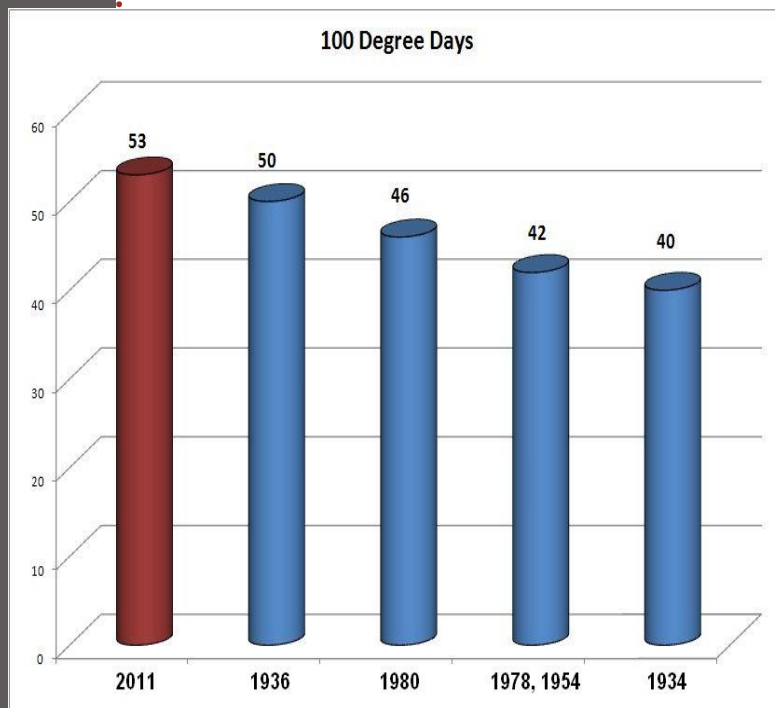
“Wichita reached 90 degrees or more each day (throughout the month of July), but the more horrendous statistic was in the 100-degree wonderland”

search is being done to assess Salina’s average temperatures during the dreadful Dust Bowl.

The 100-degree statistics are staggering. Wichita set an all-time record by reaching or exceeding the coveted century mark 49 times. When May and September are added, the total was 53. These statistics shaded the marks set in 1936 when the totals were 47 and 50 respectively. The bar graph below displays the top 5 summers during which 100 degrees was reached or exceeded.

Chanute’s total of 33 days of 100+ degree heat was their 6<sup>th</sup> highest but was greatly exceeded by the all-time record of 57 set in 1936. Based on available data, the 38 day total was Salina’s 4<sup>th</sup> highest on record.

The biggest gem was July. Wichita reached 90 degrees or more each day, but the more horrendous statistic was in 100-degree wonderland. The century mark was reached or exceeded 25 times. On two occasions, the 10<sup>th</sup> and 27<sup>th</sup>, the Air Capital wilted in 111-degree heat. Both set records for the date. From the 15<sup>th</sup> to the 31<sup>st</sup>, the coveted 100-degree mark was exceeded 16 times. Had it not been for the 25<sup>th</sup>, when the high was only 98 degrees, Wichita would have tied the all-time record for consecutive days of 100-degree plus heat set in 1980.



A graph showing how many 100 degree or higher days that Wichita recorded in a single calendar year. 53 days in 2011 broke the Dust Bowl era streak of 50 days.

August arrived abominably hot as afternoon temperatures soared to around 110 degrees on the 1<sup>st</sup> and 2<sup>nd</sup>. Searing heat produced record highs in Salina on the 1st and 2nd. The high of 110 on the 1<sup>st</sup> burned the record of 108 set in 1934, while the high of 109 on the 2<sup>nd</sup> “shaded” the mark of 108 set in 2010 and 1964. On the 2<sup>nd</sup>, Wichita’s high of 111 torched the record of 108 set just 1 year earlier. Chanute reached 110 on the 2nd which burned the record of 107 set in 1934.

The heat eased slightly on the 3<sup>rd</sup> when severe thunderstorms tore through south-central Kansas with widespread 60-70 mph gusts with

one report of 90 mph. Damaging winds overshadowed the reception of much needed rainfall with many areas receiving 2-3 inches.

The heat finally gave Kansas a much needed break on the 7<sup>th</sup> when a potent cold front surged southeast across the state bringing not only much cooler temperatures but a 4-day stretch of severe thunderstorms.

The most violent evening and night of severe thunderstorms occurred on the 9<sup>th</sup> when central and south-central Kansans were whip-lashed by 60-80 mph winds that caused widespread damage to trees, power lines, and a few roofs. Some areas were also pelted with half-dollar to golf ball sized hail. The widespread damage was greatly overshadowed further needed rainfall that the thunderstorms produced especially in central Kansas where 1 to 3 inches were measured.

However, by mid-August the heat returned. Although it wasn't as persistent as it was throughout July and the beginning of August, it still proved historic on 4 or 5 dates, especially in south-central Kansas as Wichita set or tied record highs on the 19<sup>th</sup>, 23<sup>rd</sup>, 24<sup>th</sup> and 31<sup>st</sup>.

Such persistent heat resulted in numerous high temperature records being set or tied thus enabling June, July and August to each crack the top 10 hottest on record. Here's where each month ranks among the 10 "All-Time Greats":

	Monthly Average	Rank
<b>June:</b>	<b>81.4</b>	<b>7<sup>th</sup></b>
<b>July:</b>	<b>89.3</b>	<b>2<sup>nd</sup></b>
<b>August:</b>	<b>84.9</b>	<b>9<sup>th</sup></b>

Although meteorological summer ended on August 31<sup>st</sup>, the Heat Wave of 2011 continued to put up a

**The following are daily record highs that were either set or tied**

Date	New Record 2011	Previous Record
<b>Wichita:</b>		
May 9th	100	95 in 1895
June 3rd	100	98 in 1972
June 6th	102	102 in 1933 (Tied)
June 7th	102	98 in 1958
July 10th	111	110 in 1980
July 27th	111	106 in 1986 & 1983
July 28th	107	105 in 1980 & 1910
August 2nd	111	108 in 2010
August 19th	105	105 in 1936 (Tied)
August 23rd	106	105 in 1943 & 1936
August 24th	107	104 in 2000 & 1936
August 31st	108	107 in 1990
<b>Salina:</b>		
August 1st	113	109 in 1983
August 2nd	109	108 in 2010 & 1964
<b>Chanute:</b>		
August 2nd	110	107 in 1934
August 31st	106	105 in 2000 & 1913
September 13th	100	99 in 1984 & 1939

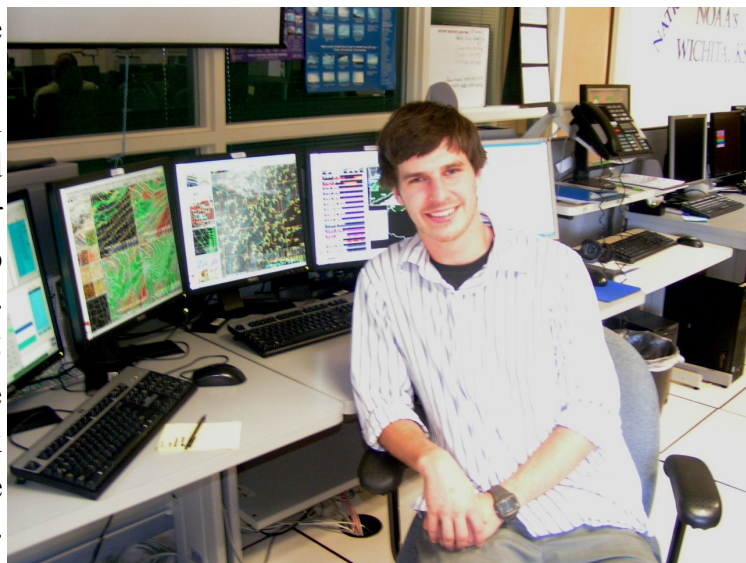
fight as the Labor Day Weekend approached. From the 1<sup>st</sup> to the 3<sup>rd</sup>, most areas baked in 100-108 degree heat with the 1<sup>st</sup> being the hottest when most of central and south-central Kansas reached 106-108. Late in the afternoon of the 3<sup>rd</sup>, a powerful cold front surged southeast across central Kansas, then across south-central and southeast Kansas on the 4<sup>th</sup> finally ending the historic Heat Wave of 2011.

Despite the historically intense heat, there was enough rainfall to prevent any segment of the 2011 summer from reaching the Top Driest on record, be it a monthly or seasonal statistic. In fact, it wasn't even close. This summer Wichita measured 9.63 inches or 4.09 inches more the 10<sup>th</sup> place occupant, 1966, when 5.54 inches were measured. Based on available data Salina's summer total of 7.19 inches ranks 14<sup>th</sup> driest all-time, but further research is needed to see where 2011 ranks when the Dust Bowl Era and the 1910s are taken into account. The 7.56 inch summer total for Chanute places 2011 as 17<sup>th</sup> on their all-time driest summers list.

Although these rainfalls proved too much to crack the top 10 of any fraternity, they were nowhere nearly enough to prevent an extreme to exceptional drought to grip nearly all of the NWS Wichita County Warning Area. Please look for the article in this newsletter that contains an article providing a detailed discussion of the drought that occurred this year.

## *Alex Laugeman: Wichita's Newest Meteorologist Intern*

Alex Laugeman comes to Wichita from the beautiful and often-times snowy Salt Lake City. He was born and raised in St. Louis, Missouri where he (like many meteorologists) acquired an interest in weather at an early age. After graduating high school in 2006, he moved to the University of Utah in Salt Lake City to receive his Atmospheric Sciences degree. After 5 years of studying mountain weather and climate (and playing in the mountains of course), Alex graduated and got a Student Career Experience Program (SCEP) position at the Western Region Headquarters in Salt Lake City. Between



Welcome Alex!

working there and at the Salt Lake City Weather Forecast Office Alex learned the basic skills for his next step as a meteorologist intern. Alex recently moved to Wichita as the newest meteorologist intern. In his free time, he greatly enjoys spending time outside especially partaking in many outdoor sports including snowboarding and mountain climbing, among others. Alex is very excited to begin working the thrilling weather in the Midwest!



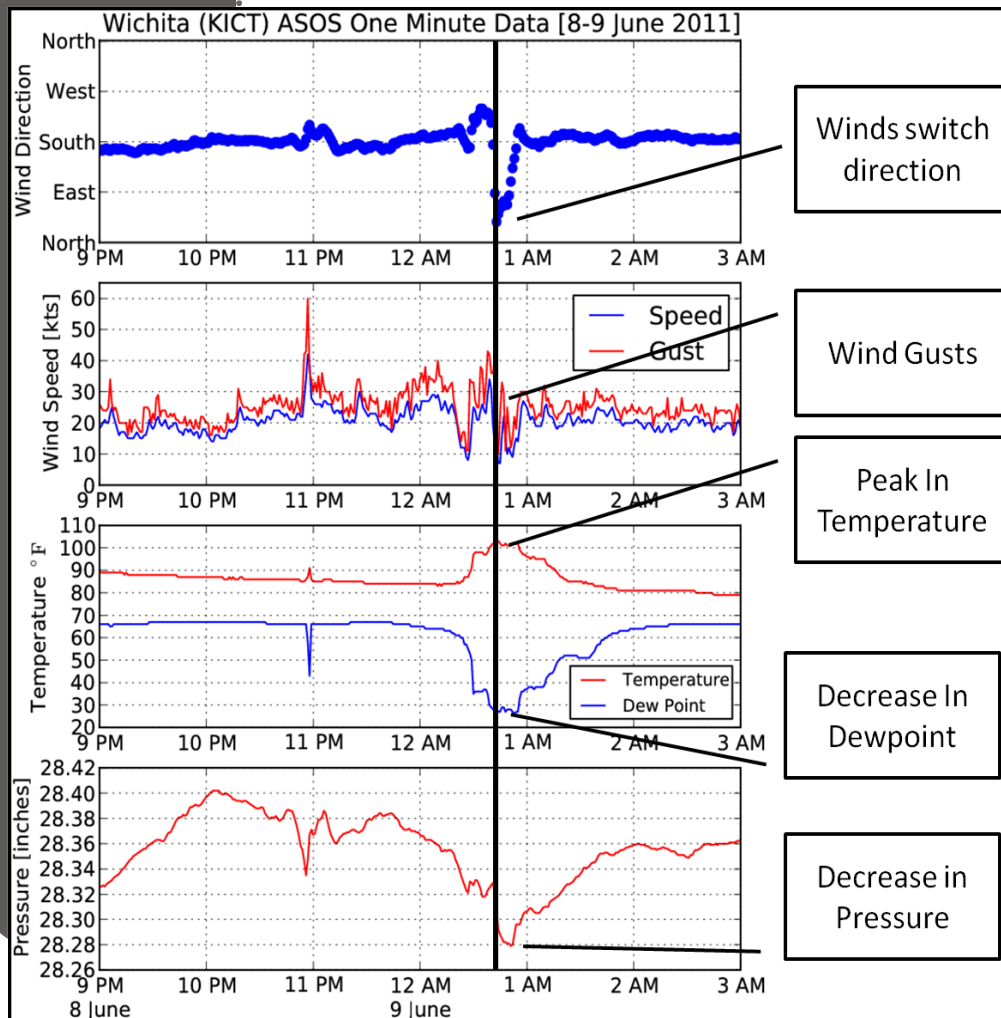
## A Strong Heat Burst was felt across Wichita

The graphs below show minute data from 9pm - 3am on June 8 -9th . The time the heat burst occurred is indicated by a black line.

An unusual heat burst occurred shortly after midnight on June 9, 2011 across the Wichita area. The temperature jumped some 15 to 20 degrees in a matter of 15 to 20 minutes rising from the low to mid 80s to around 102 degrees. The sudden rise in the thermometer was accompanied by a downburst of winds that gusted to near 60 mph in some locations.

First indication of the heat burst was on the west side of the city around 12:30 am. The temperature at the Mid-Continent Airport rose from 85 degrees at 12:22 am to 102 degrees at 12:42 am. Winds gusted to around 45 mph. Several other observations across the west side showed a temperature jump into the mid to upper 90s. The heat burst shifted to the east side of the city after 1 am. A similar jump in the temperature was noted at both Jabara Airport and McConnell Air Force Base rising to near 100 degrees shortly after 1 am that morning. The hot burst of air was also very dry with dew point temperatures dropping from the

60s into the 20s and 30s.



This burst of hot air in the middle of the night was likely the result of showers and storms which dissipated about 30 to 60 minutes prior to the heat burst being felt. Rainfall evaporated as high level air descended from the dying storms. This air compressed and warmed significantly as it descended resulting in a hot blast of air at the ground. Environmental conditions with the presence of dry air aloft have to be just right to produce the rare occurrence of a heat burst.

“All across the country,... members of the National Weather Service took their organizational name to heart”



## National Weather Service Week of Service

*By: Jerilyn Billings*

Similar to last year, many members of the WFO Wichita forecast staff gave back to the community by volunteering their time. These meteorologists happily switched gears from their daily forecasting duties to using their construction and packing skills during the National Weather Service's Week of Service.

All across the country from the local forecast offices, national aviation and river forecast centers, to the regional and national headquarters, members of the National Weather Service took their organizational name to heart. These thousands of employees worked in their communities across the nation stepping outside of the walls of the institution and their daily tasks.

Members of the Wichita forecast staff donated time to the Habitat for Humanity and the Kansas Food Bank. On Tuesday September 27th, a nine member team received their instructions and set off to work. The team completed projects such as installing shutters, doors, cabinets and trim on the house located in the Habitat Village in South Wichita. On Thursday September 29th, a two member team also donated their time at the Kansas Food Bank. They worked with a group of local high school students to pack Ziploc bags with food for school children.



(above) NWS Employees: Dick and Diane Elder, Jason Howard, Mike Urban, Chance Hayes, Mick McGuire, Paul Howerton, Vanessa Pearce, Jerilyn Billings.



Volunteering with Habitat for Humanity (above) and the Kansas Food Bank (left)



## All Good Things Must Come to an End

*by: Dick Elder Meteorologist-In-Charge*



Meteorologist-In-Charge, Dick Elder closes out an esteemed career as a Meteorologist after 40 years of Federal Service. Spending the last 21 1/2 years in Wichita, KS.

At the end of this year I plan to retire as the manager of the National Weather Service Office in Wichita, KS. This is a position I have had the distinct honor of holding for the last 21 1/2 years. This will close out my Federal Service career that began nearly 40 years ago when I walked into the Weather Office just across town at McConnell Air Force Base, where I began as an enlisted Air Force Weather Observer in 1972. Following the Air Force, and completing my Meteorology Degree at the University of Oklahoma, I began my National Weather Service career in 1977 at the Hurricane Research Laboratory in Miami, FL. This was followed by assignments at National Weather Service Offices in Fort Worth, TX, Denver, CO, the National Severe Storms Forecast Center in Kansas City, MO (the predecessor to the Storm Prediction Center), and Pittsburgh, PA.

As I reflect back on my career, I certainly have had the opportunity to see many changes in how weather forecasts and warnings are generated and delivered. When I first started, all our products and services were disseminated via teletype machines which transmitted information at 60 words per minute. Routine forecasts were issued for only 1 to 2 days into the future. Around 1980 weather offices began being more automated with computer technology to access and disseminate information. The NOAA Weather Radio Network was deployed which allowed us to reach most of the general public. By the end of the 80's, our goal was once a forecaster decided to issue a warning, they should be able to get it composed, disseminated and on the Weather Radio within 5 minutes. In addition, 2 days forecasts were routine with the extended going out to 5 days!

Through the 90's was the deployment of the WSR-88 Doppler Radars. What an incredible advancement this has been for us. Wichita was the 6<sup>th</sup> Weather Service Office in the country to get this radar, and we have certainly seen an improvement in our ability to recognize dangerous storms and warn for them. Prior to the WSR-88D Radar, tornado warnings typically were issued when a funnel cloud or tornado had been observed. Now issuing warnings that give the public 10 to 12 minutes advance notice of a tornado touching down is the norm thanks to this technology.

The last 10 years we have witnessed amazing advances in computer technology with regard to the speed that they operate and how it has enhanced the way we view and receive information. These advances have revolutionized the field of meteorology. Forecasts have improved immensely! Seven day forecasts are now the norm with extended forecasts going out through a season or more. Warnings now instead of being by county are polygons that the forecaster draws on a computer screen and with a click of a mouse it is disseminated both through the wire services and onto Weather Radio. What is amazing to me is that each of us can now actually see the polygon on items as simplistic as our cell phone. Phenomenal!!

The one constant through all these changes is you, our SKYWARN Spotters, and what you do for us. It is no secret that people need validation that they are truly in harm's way before they consider going to shelter. Time and again over my career it has been you providing the ground truth information that gets people to act, and ultimately lives are saved. I still remember back after the April 26, 1991 tornado event when I received a letter from a lady thanking us for saving her father's life. After the tornado had gone through Andover and was still moving to the northeast, the lady relayed that she heard how spotters were still tracking the storm as it was moving up the Turnpike. Her father lived in a rural area in the vicinity of where the tornado was heading. She called him and told him that he needed to get to shelter because spotters were reporting that a tornado was headed his way. Because of those actions, this man got to shelter before his home was hit. Who was that SKYWARN Spotter that made those calls? I don't know. I do know that he or she was just like so many of you; service minded volunteers that time and again are out watching storms and reporting the information that provides the validation we need to act.

Over the years I have had the opportunity to meet many of you. Your interest in weather and caring attitude toward keeping others informed and safe is something I will always cherish. Even though I am looking forward to the next chapter in my life, I will miss the opportunity to work with you. On the same token though, since my wife and I plan to stay in Kansas after my retirement I will certainly still be relying on you for that "Ground Truth" information to know what's going on. In addition, I will get to be a SKYWARN Spotter myself more often and am looking forward to that.



**SKYWARN**  
**WEATHER.GOV®**

I have said many times, the best place on planet earth to be a meteorologist is in Kansas. We get all types of weather which is great. On top of that there are a lot of us that are genuinely interested in the weather, so it's always easy to start up a conversation and meet new people. Thanks again for what you do.



Be sure to find

**US National Weather Service Wichita  
Kansas**

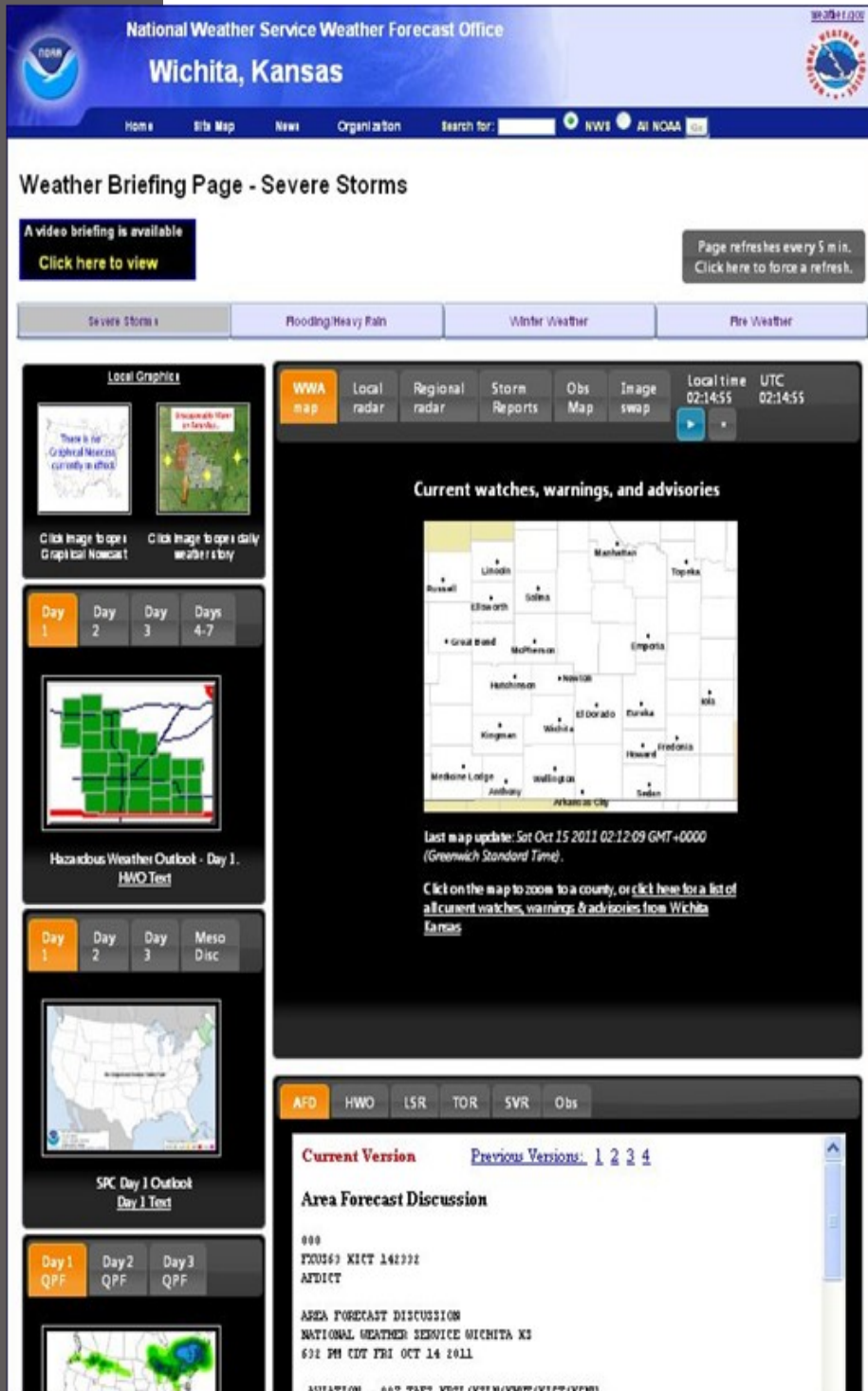
on facebook

**Also be sure to check if your county Emergency Manager has a facebook page for your county.**



## New Hazardous Weather Briefing Pages

by: Robb Lawson



The Wichita National Weather Service has developed a new webpage that is geared to help with Decision Support. The image on the left is an example of the webpage. This webpage has a few unique features that the NWS briefing pages have not had in the past. Be sure to bookmark this page and/or watch for it when it is posted on the "Top News of the Day" on [www.weather.gov/ict](http://www.weather.gov/ict) before an expected event. Check it out!

### Unique Features

- \* Auto-updates every 5 minutes*
- \* Automatically loops through several of our most used products.*
- \* Will display a link if a video briefing is available.*
- \* Specific pages for severe storms, winter weather, flooding and fire weather.*

<http://www.crh.noaa.gov/ict/?n=embrief>

## Summer 2011 Marred Further By Exceptional Drought

*By: Eric Schminke - General Forecaster*

The historic Heat Wave of 2011 had many profoundly adverse effects on Kansas. One such profound effect was the exceptional drought that gripped most of south-central Kansas for most of the summer. Before we proceed with the description of this horrific drought, we must first introduce you to the various drought classifications. This will also include a description of each drought classification and the resulting ramifications.

### There are 5 drought classifications:

#### ◆ Exceptional Drought (D4):

D4

Crop and pasture losses are widespread and catastrophic. An exceptional fire danger exists. Water shortages in reservoirs, rivers, streams and wells are widespread resulting in water emergencies.

#### ◆ Extreme Drought (D3):

D3

Crop and pasture losses are major. An extreme fire danger exists. Water shortages are widespread and, restrictions are possible.

#### ◆ Severe Drought (D2):

D2

Crop and pasture losses are high. A very high fire danger exists. Water shortages are common that may require water use restrictions.

#### ◆ Moderate Drought (D1):

D1

Some damage to crops and pasture is possible. A high fire danger exists. Some water shortages develop or are imminent that may result in requesting that water use be restricted.

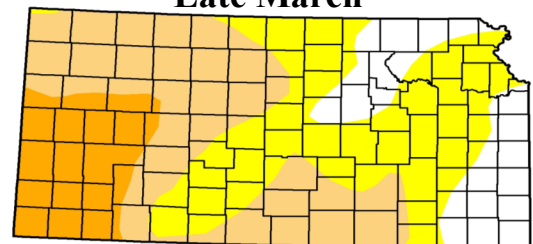
#### ◆ Abnormally Dry (D0):

D0

Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.

Late March

Figure 1



### How The Drought Developed

During March and April, Wichita measured only 2.43 inches of rain (2.85 inches below or 46% of normal). Salina measured a scant 2.28 inches (3.40 inches below or 40% of normal), during the 2-month period. Chanute measured 4.94 inches, but this was 2.36 inches below or 68% of normal.

During March, moderate drought (D1) had been confined to primarily south-central Kansas with

No Drought	D0-D4	D1-D4	D2-D4	D3-D4	D4
15.5%	84.5%	50.3%	15.2%	0	0

abnormal dryness experienced in most other areas (Figure 1). By late April, the drought had gradually intensified, with extreme south-central Kansas deteriorating into a severe drought while moderate drought had spread toward central and southeast Kansas (Figure 2).

### The Drought Intensifies

In May, the rainfall deficits increased in south-central and central Kansas from the 1<sup>st</sup> to the 15<sup>th</sup>. Wichita had measured a scant 0.21 of an inch, and Salina only measured 0.25 of an inch. Equally significant was that both

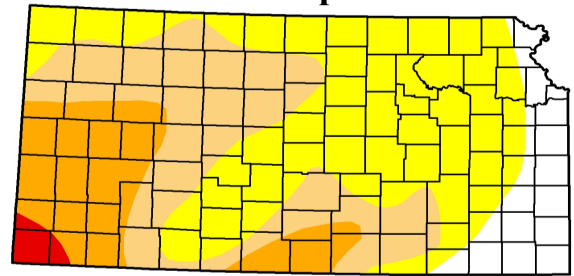
cities measured 0.10 inch or more on only 1 date during the 2-week period. Chanute measured 2.22 inches which produced a scant surplus of 0.04 inch, but 2.06 inches occurred on the 11<sup>th</sup>. From the 16<sup>th</sup> to the 31<sup>st</sup>, thunderstorms occurred on several occasions especially over southeast Kansas to provide some much needed rainfall.

By mid-May, severe drought (D2) had spread slowly north and northeast across all of south-central Kansas to as far as Great Bend, McPherson, Cottonwood Falls and El Dorado. Two weeks later, extreme drought had spread from western Oklahoma to most of south-central Kansas (Figure 3).

In June, thunderstorms increased markedly in frequency and more importantly intensity especially over south-central Kansas during the middle of the month. Many of the thunderstorms were severe and produced very heavy rains despite a hot start to the month that enabled the 2011 edition to become Wichita's 7<sup>th</sup> hottest June on record, the much needed rainfall and the cooler temperatures that followed enabled the drought to stabilize across the region.

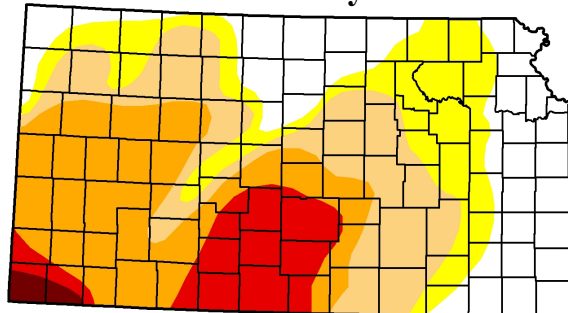
However, the drought in northern Oklahoma had worsened from extreme to exceptional. When July arrived, the drought severity would likewise worsen dramatically in most of south-central Kansas. (Figure 4).

**Late April** Figure 2



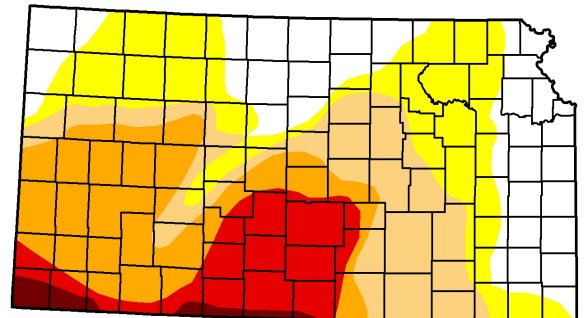
No Drought	D0-D4	D1-D4	D2-D4	D3-D4	D4
10.4%	89.6%	45.5%	17.9%	1.4%	0

**Late May** Figure 3



No Drought	D0-D4	D1-D4	D2-D4	D3-D4	D4
24.5%	75.5%	57.2%	35.8%	11.6%	1.0%

**Late June** Figure 4



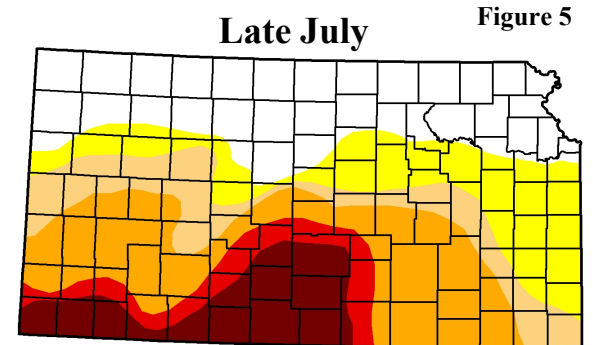
No Drought	D0-D4	D1-D4	D2-D4	D3-D4	D4
23.7%	76.3%	52.3%	33.9%	13.8%	2.0%



## The Drought Situation Turns Critical

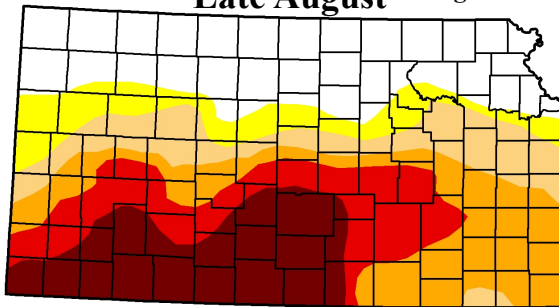
In July, the furnace turned up and ran full throttle especially from the 10th to the 31<sup>st</sup> as a strong, massive high pressure ridge became anchored over most of the U.S. High temperatures exceeded 100 degrees nearly each afternoon. When the furnace was turned up, the spigot was turned off. In fact, with a monthly average temperature of 89.3 degrees, this was Wichita's 2<sup>nd</sup> hottest July on record. The result: A drought that greatly and dramatically worsened.

By late July, the exceptional drought had spread rapidly north across South-Central Kansas along and west of I-135 where water emergencies went into effect. A narrow corridor along and immediately adjacent to I-135 was in an extreme



No Drought	D0-D4	D1-D4	D2-D4	D3-D4	D4
29.5%	70.5%	53.0%	40.5%	17.6%	11.6%

**Late August** Figure 6



No Drought	D0-D4	D1-D4	D2-D4	D3-D4	D4
27.9%	72.1%	62.3%	49.8%	31.9%	17.5%

drought while areas affected by a severe drought were essentially unchanged. As such, the drought "gradient" had sharpened in a west/east manner (Figure 5).

In August, the strong, massive high pressure ridge had covered nearly all of the U.S. The exceptional drought that had gripped most of south-central Kansas along and west of I-135 had crept toward central Kansas (Figure 6). Water emergencies remained in effect for these areas until mid-September. Meanwhile, extreme drought had spread further north to I-70 and east over Chase and Greenwood counties. The areal extent of the severe drought had spread across the remainder of southeast Kansas. By this time, the drought had reached a plateau that would extend until mid September.

## The Drought Slowly Eases

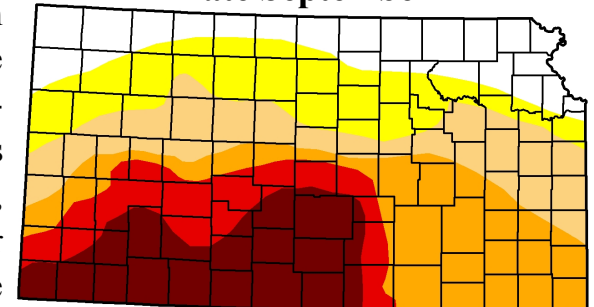
Although August started and ended exceptionally hot, noticeably cooler weather dominated the middle third of the month. There were also two periods of thunderstorm activity that produced much needed rainfall.

The first bout of thunderstorms brought upwards of 2-3 inches of rain, while the second period brought another 1-2 inches, with some locations receiving around up to 3 inches. Equally

important for the drought in August was that the heat eased for a brief period returning in the middle of the month. By mid-September, a 3-day period of thunderstorms produced very heavy rains that soaked many areas with 1-2 inch amounts.

With the increasing thunderstorm activity and much cooler weather spreading across the state, the drought slowly began to ease. In mid-September, exceptional drought had covered south-central Kansas along and west of I-135 (Figure 7). By mid-October, the areal extent was confined to primarily Harper and Kingman counties. However, an extreme drought still covered the remainder of south-central and most of southeast Kansas.

**Late September** **Figure 7**



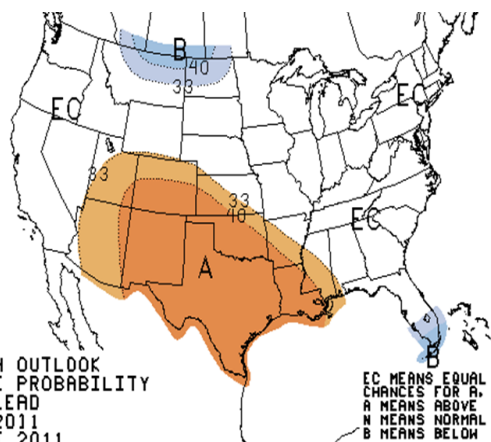
No Drought	D0-D4	D1-D4	D2-D4	D3-D4	D4
16.4%	83.6%	66.0%	48.8%	28.5%	17.6%

## Outlook

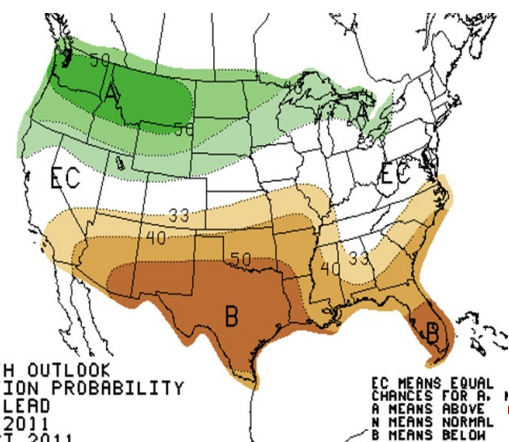
La Niña has returned to the Central and Eastern Equatorial Pacific. That is, sea surface temperatures across these areas of the globe are cooler than normal and are forecast to become even more so as this winter approaches. The onset of a La Niña generally translates into an enhanced probability of above-normal temperatures and below-normal precipitation for South-Central and Southeast Kansas. The latest seasonal forecasts show that the drought should intensify across all of central, south-central and southeast Kansas through the end of February. One reason for this 3-month outlook is that during a La Niña, the primary storm tracks are shifted north across the northern half of the U.S. thereby resulting in enhanced chances for above-normal temperatures and below-normal precipitation across southern Kansas (Figures 8 and 9).

The behavior of the La Niña is being watched closely with an extreme to exceptional drought possibly continuing. For continuous outlooks, Drought Information Statements will generally be issued in the middle and at end of the month.

**Figure 8**



**Figure 9**





## National Weather Service

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Wichita, KS 67209  
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Email: chance.hayes@noaa.gov

Newsletter Editor:  
Jerilyn Billings, General Meteorologist  
Email: Jerilyn.Billings@noaa.gov

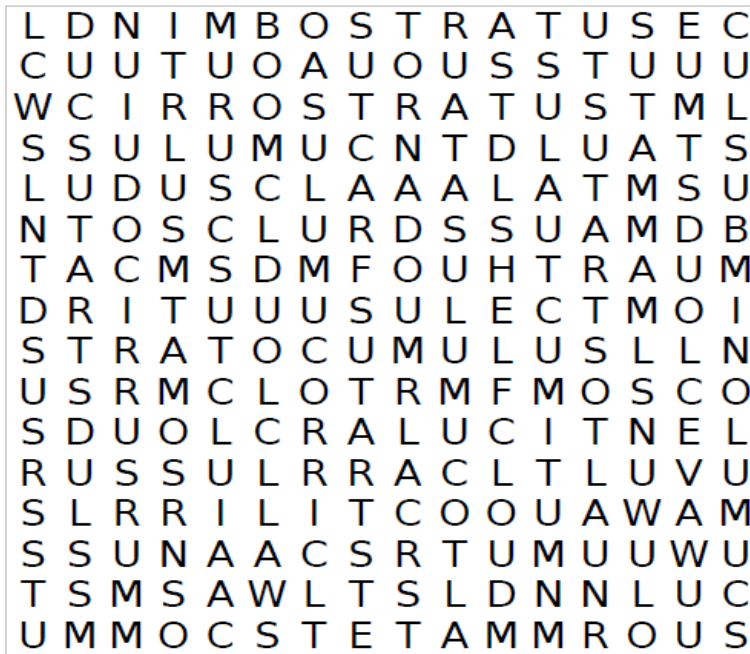
“The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information, database and infrastructure which can be used by other government agencies, the private sector, the public, and the global community.”



**Online: [www.weather.gov/Wichita](http://www.weather.gov/Wichita)**

### Cloud Types NWS Wichita, KS

Find the various types of clouds that can be found in the sky.



Altostratus  
Cirrostratus  
Cumulus  
Nimbostratus  
Stratus  
Wall Cloud

Altostratus  
Cirrus  
Lenticular Clouds  
Shelf Cloud  
Stratus Fractus  
Wave Cloud

Cirrocumulus  
Cumulonimbus  
Mammatus  
Stratocumulus  
Tornado

## NWS Wichita Word Search

Answer Below:

